



GARLAND

WATER UTILITIES

2017
CAPITAL IMPROVEMENT PROGRAM

WES KUCERA, MANAGING DIRECTOR

Distribution Lines Replacement (6 & 8 inches)

2017 Project Cost: \$1,012,000
Total Project Cost: N/A
Estimated Completion Date: Ongoing
Council District: All



Water Lines Repair and Maintenance

- This project provides funding for the installation of short sections of new water lines for repair purposes by the City's In-house crews.

2017 Water Distribution Line Replacement Projects:

Cortez Dr. - Kingsley Road to Flores Dr.	Flores Dr. - Cortez Dr. to Belita Dr.
La Jolla Dr. - Intervale Dr. to Birchwood Dr.	Mayfield Dr. - Saturn Rd. to Lexington Dr.
Boca Raton Dr. - Maple Glen Dr. to Tacoma Dr.	Morningside Dr. - Miller Rd. to Lakemere Dr.
Maple Glen Dr. - Tacoma Dr. to Boca Raton Dr.	

Distribution Lines (Up to 14 inches)

2017 Project Cost: \$3,850,000
Total Project Cost: N/A
Estimated Completion Date: Ongoing
Council District: All



Water Lines Repair and Maintenance

- Replacement of water distribution lines which have deteriorated to a substandard condition.

2017 Water Distribution Line Replacement Projects:

Profit Dr. & Lavon Hwy. - First Street to Rosewood Hills Dr.	Syracuse Dr. - Vanderbilt Dr. to End
Justice Dr. - Plano Rd. to Yale Dr.	Glenbrook Dr. - Kingsley Rd. to Carroll Dr.
Ridgedale Dr. - Kingsley Rd. to Kenwood Dr.	Intrepid Dr. - Spindrift Passage to Windward Dr.

Transmission Mains (16 inches and Above)

2017 Project Cost: \$1,977,000
Total Project Cost: N/A
Estimated Completion Date: Ongoing
Council District: All



New or Upgrade of Existing Transmission Mains

- Installation of new or upgrade of existing water transmission mains – includes cost of labor, outside contractors, and engineered condition.

2017 Transmission Mains Projects:

Forest Ln. – Jupiter Road to Railroad Tracks
Shiloh Road to State Street

Miller Road - Hilltop Drive to Saturn Rd.

Broadway Boulevard - Merrimac Dr. to Wynn Joyce Rd.

Relocation of Mains Prior to Paving

2017 Project Cost: \$3,603,000
Total Project Cost: N/A
Estimated Completion Date: Ongoing
Council District: All



Relocation in Coordination with Engineering and Street Departments

- Relocation of water lines prior to paving. Replacements are necessary to maintain adequate water service, avoid utility conflicts, and upgrade the water distribution system.

2017 Water Main Replacement Projects:

Fifth Street - Delano Dr. to Miller Rd.	Fifth Street - Kingsley to Ridgedale Dr.
Parkmont Dr. project - Gary Dr., Daniel Dr., & Larry Dr.	Shiloh Road - LBJ Freeway to Kingsley Rd.
Sunnybrook Dr. - Westchester Dr. to Devonshire Dr.	Brand Road - State Highway 190 to Muirfield Rd.

West Pressure Plane Improvements

2017 Project Cost: \$1,660,000
Total Project Cost: \$14,674,000
Estimated Completion Date: 6/2018
Council District: All



New Water Pipeline and Storage Tank

- This project incorporates a phased approach to add capacity and reliability to the West Pressure Plane of our Water Distribution System.
 - Phase 1 is complete and included the expansion and rehabilitation of Wallace Pump Station and construction of a new 24-inch transmission line.
 - Phase 2 for construction of the McCree Road 2.5-million-gallon elevated storage tank is currently underway in the southwest portion of Garland. It is located on the southwest corner of McCree Road and Leon Road.



Water Pump Station - Enhancements

2017 Project Cost:	\$2,188,000
Total Project Cost:	N/A
Estimated Completion Date:	Ongoing
Council District:	All

Enhancements / Improvements

- New Emergency Generator at Wallace Pump Station
- Enhanced Security Fence at Lavon Pump Station and Lawler Water Tower
- Apollo Pump Station (rehabilitation of Pump #1 & Pump #6)
- Commerce Water Tower (floor slab movement correction)

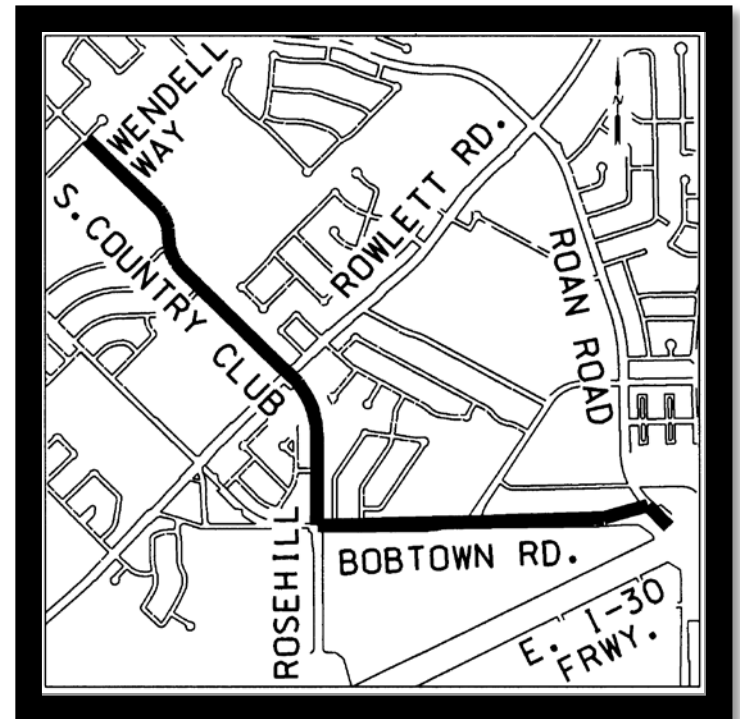


Country Club / Bobtown Water Transmission Mains

2017 Project Cost: \$1,000,000
Total Project Cost: \$5,809,000
Estimated Completion Date: 12/2018
Council District: 3

Replacement of Transmission Mains

- New 24-inch main as recommended by the hydraulic water model
- Increase water flows to the I.H. 30 corridor.
- Country Club from Rowlett Road to Bobtown Road
- Bobtown Road from Country Club to Roan Road
- Bobtown Road street replacement project
- Previously, a 24-inch main was installed along new Country Club Road from Wynn Joyce to Country Club



Roan Road Water Transmission Main

2017 Project Cost: \$400,000
Total Project Cost: \$2,000,000
Estimated Completion Date: 12/2018
Council District: 3



Replacement of Transmission Mains

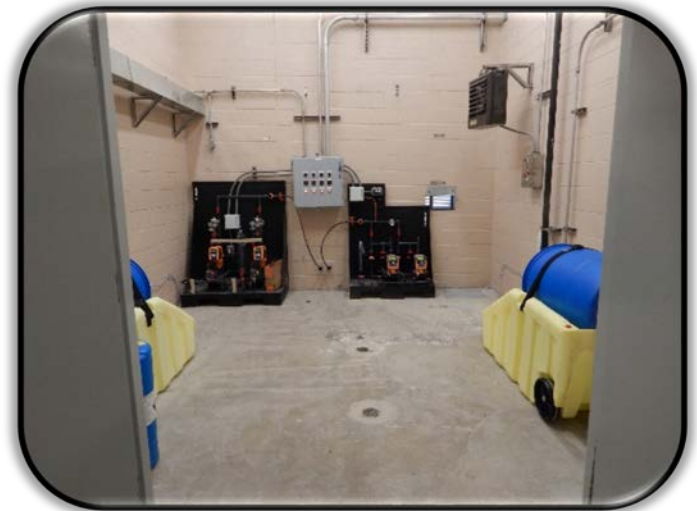
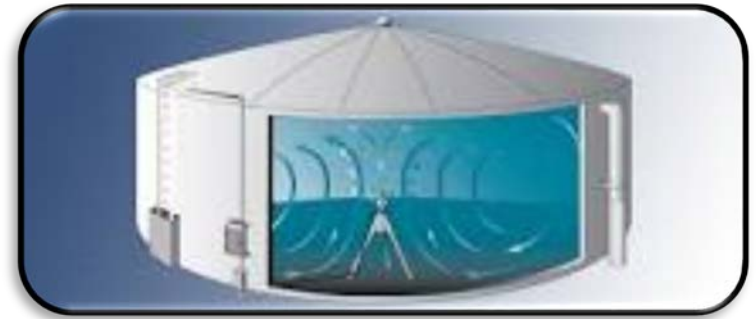
- Installation of a 16-inch water line
- Increase the water volume available for the I.H. 30 catalyst area
- Roan Road from Rowlett Road to Waterhouse Drive

Water Quality Assurance

2017 Project Cost: \$400,000
Total Project Cost: \$400,000
Estimated Completion Date: 12/2017
Council District: All

Water System Infrastructure Enhancements

- Tank Mixing Systems
- Water Chloramination Boosting Systems
- Automated System Flushing Units



SUMMARY OF CIP PROJECTS

Project Name	2017 CIP Impact from Actionable Projects
Distribution Lines (6 & 8 Inches)	\$ 1,012,000
Distribution Lines (Up to 14 Inches)	3,850,000
Transmission Mains (16 Inches and above)	1,977,000
Relocation of Mains Prior to Paving	3,603,000
West Pressure Plane Improvements	1,660,000
Water Pump Station Enhancements	2,188,000
Country Club / Bobtown Water Transmission Mains	1,000,000
Roan Road Water Transmission Main	400,000
Water Quality Assurance	400,000
Total	\$16,090,000

QUESTIONS?



GARLAND

WATER UTILITIES



GARLAND
WASTEWATER COLLECTION

2017
CAPITAL IMPROVEMENT PROGRAM

2017 Project Cost:	\$1,837,000
Total Project Cost:	N/A
Estimated Completion Date:	Ongoing
Council District:	All

Infiltration Corrections

Infiltration/Inflow Corrections into Sanitary Sewer Lines and Manholes



- The purpose of this project is for the correction of major sources of infiltration/inflow into the sanitary sewer collection system. The systematic correction of these sources is an ongoing task. The City's sewer collection system is relatively old and continually in need of revitalization to reduce sources of infiltration/inflow, and replacement of substandard mains is essential for known sources.
- Two siphons in Duck Creek north of Nickens Road and south of La Prada built in 1966 will be replaced. Parkmont Drainage project will replace the old clay tile pipe with PVC.

Collection Mains

2017 Project Cost: \$1,973,000
Total Project Cost: N/A
Estimated Completion Date: Ongoing
Council District: All

Sewer Lines Repair and Maintenance

- This project provides replacement of substandard sanitary sewer mains which have deteriorated beyond repair. This includes the installation or expansion of existing sewer collection mains. Costs include labor, materials, outside contractors, engineering design, and all other expenses as required.

2017 Collection Main Projects:

Profit Dr. & Lavon Hwy. - First St. to Rosewood Hills Dr.

Glenbrook Dr. - Kingsley Rd. to Carroll Dr.



Cured-in-Place Pipe Main & Lateral Rehab

2017 Project Cost:	\$1,000,000
Total Project Cost:	N/A
Estimated Completion Date:	Ongoing
Council District:	All



Sewer Improvement

- This project allows for the rehabilitation of both City mainline and lateral lines for pipe sizes from 6-inch up to 30-inch diameter. The process differs from other methods of repair since it is "no dig" construction. Relining sewer pipes improves flow characteristics which reduces stoppages and manhole overflows. Reduction of sanitary sewer overflows (SSOs) is required by State and Federal regulations. Eleven (11) eligible streets and alleys are to be relined as part of the 2017-19 Street Department Reconstruction project.

Relocation of Mains Prior to Paving

2017 Project Cost:	\$2,700,000
Total Project Cost:	N/A
Estimated Completion Date:	Ongoing
Council District:	All

Relocation in Coordination with Engineering and Street Departments

- This project is for the replacement or relocation of substandard sanitary sewer collection mains prior to paving streets or alleys. Replacement is necessary to maintain reliable service, avoid utility conflicts, and allow systematic upgrading to the existing sanitary sewer collection system. This project includes funding for wastewater mains and improvements on Shiloh Road from I.H. 635 to Kingsley. To avoid potential elevation conflicts with water or stormwater pipes, engineering designs for 39 streets and alleys are necessary to comply with the most current TCEQ construction standards.

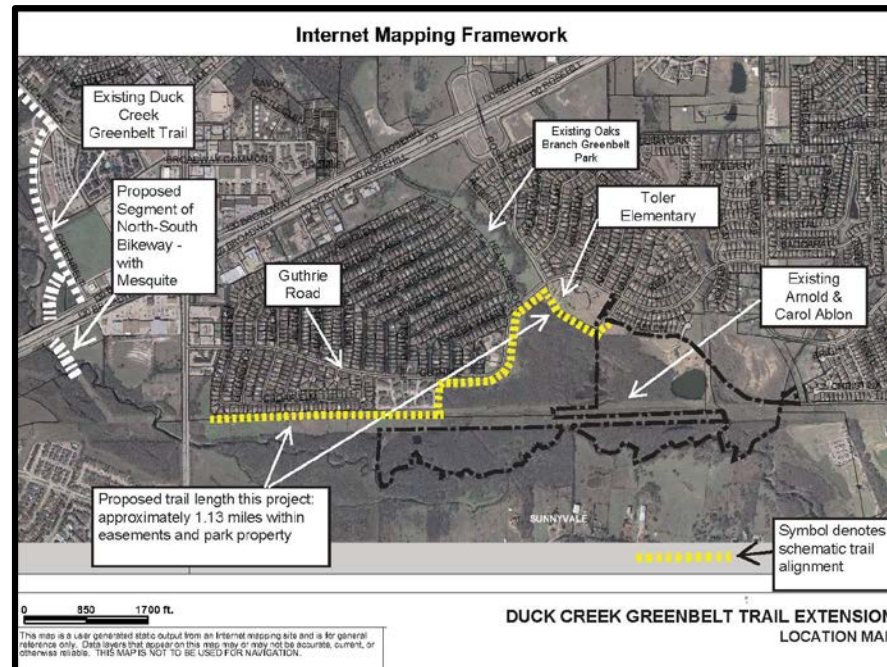


Duck Creek Greenbelt Trail Extension

2017 Project Cost:	\$1,024,000
Total Project Cost:	\$1,490,000
Estimated Completion Date:	6/2018
Council District:	3, 4

Trail Development

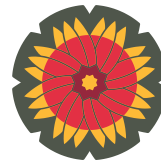
- The Duck Creek Sanitary Sewer Interceptor excavation caused disruption to portions of the City of Garland's park land. Restoration of that park land includes the construction of a hike and bike trail east of the I.H. 30 corridor and Belt Line Road area. This trail extension provides access for Garland residents to parks, natural areas, and an elementary school along the Duck Creek interceptor line south of Guthrie Road.



SUMMARY OF CIP PROJECTS

Project Name	2017 CIP Impact from Actionable Projects
<u>Wastewater Collection</u>	
Infiltration Corrections	\$1,837,000
Collection Mains	1,973,000
Cured-in-Placed Pipe Main & Lateral Rehab	1,000,000
Relocation of Mains Prior to Paving	2,700,000
Duck Creek Greenbelt Trail Extension	1,024,000
Total	\$8,534,000

QUESTIONS?



GARLAND

WASTEWATER COLLECTION



GARLAND

WASTEWATER TREATMENT

2017

CAPITAL IMPROVEMENT PROGRAM

Rowlett Creek WWTP Improvements

2017 Project Cost:	\$3,547,000
Total Project Cost:	N/A
Estimated Completion Date:	Ongoing
Council District:	2

Rowlett Creek Improvements

- The objective of this program is to enhance reliability and extend the useful life of the City's existing wastewater treatment infrastructure through the time-phased replacement, rehabilitation, and disposal of facilities, systems, and equipment incapable of providing required levels of service.
- Improvements to monitoring control systems (SCADA).
- Primary effluent pumps, and final effluent pumps inspections and rebuilds/replacements.
- Plant water variable frequency drive inspections and rehabs/replacements.
- Evaluate and study removal of phosphorus to meet the future reduction of nutrient discharges as mandated by the EPA/TCEQ.



Rowlett Creek WWTP Biosolids Expansion and Odor Abatement

2017 Project Cost: \$18,750,000
Total Project Cost: N/A
Estimated Completion Date: Ongoing
Council District: 2



Biosolids and Odor Abatement

- The design, installation, and construction of biosolids handling and treatment equipment.
- Completed the decommissioning of the digesters and the gravity belt thickeners.
- The construction phase is at 60% completion.
- New centrifuge is in operation. Sludge volume has been reduced leading to fewer trips to the Landfill.
- Upon completion of the building rehabilitation and equipment replacement, the biosolids process will be fitted for odor control mechanisms.

Rowlett Creek WWTP Biosolids Expansion and Odor Abatement

2017 Project Cost:	\$18,750,000
Total Project Cost:	N/A
Estimated Completion Date:	Ongoing
Council District:	2



Duck Creek WWTP Improvements

2017 Project Cost:	\$9,013,000
Total Project Cost:	N/A
Estimated Completion Date:	Ongoing
Council District:	N/A

Duck Creek Improvements

- The objective of this program is to enhance reliability and extend the useful life of the City's existing wastewater treatment infrastructure through the time-phased replacement, rehabilitation, and disposal of facilities, systems, and equipment incapable of providing required levels of service.
- Improvements to monitoring control systems (SCADA).
- Raw water influent pump replacements.
- Upgrade the blower system for the 5 MGD aeration basin.
- Rehabilitation of four primary clarifiers.
- Pilot testing of cloth filter media to replace gavel/sand/anthracite media.
- Alternative disinfection study – review alternative techniques to eliminate chlorine gas.
- Add an additional backup power generator and upgrade generator software.
- Evaluate and study the removal of phosphorus to meet the future reduction of nutrient discharges as mandated by the EPA/TCEQ.



Rowlett Creek Operations Center Renovations

2017 Project Cost: \$2,500,000
Total Project Cost: \$7,700,000
Estimated Completion Date: 12/2018
Council District: N/A

Rowlett Creek Improvements

- The current Operations building was built in 1987 and is 30 years old and in need of renovation. This new renovation will provide increased functionality for the Operations staff while addressing the need for additional capacity and modernizing the aging infrastructure.
- Originally designed to accommodate six (6) people; now 11 to 17 people occupy the building at the same time.
- Originally designed to house maintenance activities, a controlled storeroom now occupies the maintenance area.
- There is currently a lack of adequate space for the control room operations and plant process testing lab.
- There is no meeting or training room available. Training classes are held off-site due to limited space.
- Due to limited space on-site, the building will need to have a second floor added.



Rowlett Creek Operations Center Renovations (Cont.)

2017 Project Cost: \$2,500,000
Total Project Cost: \$7,700,000
Estimated Completion Date: 12/2018
Council District: 2



Rowlett Creek Operations Center Renovations *(Cont.)*

2017 Project Cost:	\$2,500,000
Total Project Cost:	\$7,700,000
Estimated Completion Date:	12/2018
Council District:	2



SUMMARY OF CIP PROJECTS

Project Name	2017 CIP Impact from Actionable Projects
<u>Wastewater Treatment</u>	
Rowlett Creek WWTP Improvements	\$ 3,547,000
Rowlett Creek WWTP Biosolids Expansion	18,750,000
Duck Creek WWTP Improvements	9,013,000
Rowlett Creek Operations Center Renovations	2,500,000
Total	\$33,810,000

QUESTIONS?



GARLAND

WASTEWATER TREATMENT